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CLAIMS

[Claim(s)]

[Claim 1] In the wide range image pick-up approach which picturizes two or more wide range image pick-up fields with the image pick-up equipment of immobilization The disc-like hologram which has whenever [predetermined angle-of-diffraction], or the disc-like hologram which made whenever [angle-of-diffraction / of each hologram of fanning divided into two or more fields] differ mutually, Or the sheet-like hologram which made whenever [angle-of-diffraction / of each hologram of the rectangle mold divided into two or more fields] differ mutually is arranged in the front face of said image pick-up equipment. The wide range image pick-up approach characterized by moving the hologram of the shape of the discoid or a sheet with a hologram migration means, and picturizing said two or more wide range image pick-up fields.

[Claim 2] In the wide range image pick-up approach which picturizes two or more wide range image pick-up fields with the image pick-up equipment of immobilization The disc-like hologram which has whenever [predetermined angle-of-diffraction], or the disc-like hologram which made whenever [angle-of-diffraction / of each hologram of fanning divided into two or more fields] differ mutually, Or the sheet-like hologram which made whenever [angle-of-diffraction / of each hologram of the rectangle mold divided into two or more fields] differ mutually is arranged in the front face of said image pick-up equipment. The hologram of the shape of the discoid or a sheet is moved with a hologram migration means. The wide range image pick-up approach characterized by choosing the video signal which picturized said two or more wide range image pick-up fields, and picturized said two or more image pick-up fields outputted from the image pick-up equipment of said immobilization for every video signal of each image pick-up field corresponding to said two or more image pick-up fields, and outputting as a video signal of another network.

[Claim 3] In the wide range image pick-up approach which picturizes two or more wide range image pick-up fields with the image pick-up equipment of immobilization The disc-like hologram which has whenever [predetermined angle-of-diffraction], or the disc-like hologram which made whenever [angle-of-diffraction / of each hologram of fanning divided into two or more fields] differ mutually, Or the sheet-like hologram which made whenever [angle-of-diffraction / of each hologram of the rectangle mold divided into two or more fields] differ mutually is arranged in the front face of said image pick-up equipment. The hologram of the shape of the discoid or a sheet is moved with a hologram migration means. The wide range image pick-up approach characterized by outputting the video signal which picturized said two or more wide range image pick-up fields, and picturized two or more image pick-up fields outputted from the image pick-up equipment of said immobilization as a single video signal which can display said two or more image pick-up fields on coincidence with single supervisory equipment.

[Claim 4] In the wide range image pick-up approach which picturizes two or more wide range image pick-up fields with the image pick-up equipment of immobilization The disc-like hologram which has whenever [predetermined angle-of-diffraction], or the disc-like hologram which made whenever [angle-of-diffraction / of each hologram of fanning divided into two or more fields] differ mutually,

Or the sheet-like hologram which made whenever [angle-of-diffraction / of each hologram of the rectangle mold divided into two or more fields] differ mutually is arranged in the front face of said image pick-up equipment. The wide range image pick-up approach characterized by picturizing the specific image pick-up field of said two or more wide range image pick-up fields when it is judged that the hologram of the shape of the discoid or a sheet was moved with the hologram migration means, and said hologram has stopped.

[Translation done.]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the image pick-up approach which used the video camera, especially relates a large area to the wide range image pick-up approach which can be picturized (image pick-up).

[0002]

[Description of the Prior Art] In the image pick-up with an image, a wide range image or two or more images (multipoint) are needed in many cases. However, since the visual field range is limited, in order to picturize a large area, it is necessary to make the number of the video camera to picturize increase in the usual video camera according to simple technique. Moreover, in order to picturize without making the number of a video camera increase, solution is achieved by various approaches.

[0003] For example, the approach of acquiring a wide range image by moving the video camera for an image pick-up is indicated by JP,7-303201,A "the video camera for an image pick-up" (refer to the drawing 14 (a) front view and (b) side elevation). This is the thing of a configuration of installing the video camera unit 122 in a longitudinal direction pivotable focusing on the vertical direction and the Z-axis focusing on the X-axis, respectively, as shown in drawing 14 . This configuration rotates the video camera unit 122 which has remarkable weight, and it requires time amount until it makes the video camera unit 122 which has weight considerably halt and makes it picturize.

[0004] Moreover, the approach of making rotate a mirror and acquiring a wide range image (perimeter panorama image) is indicated by JP,11-4373,A "the perimeter panorama image configuration approach and equipment" (refer to drawing 15). This obtains the panorama image information of the perimeter by making a mirror 1311 incline, arranging it in the location which counters the image pick-up side of image pick-up equipment 1310, and rotating a mirror 1311 with a rotary motor 1312.

[0005] Furthermore, the approach of acquiring a wide range image by two curved-surface mirrors (hyperboloid mirror) from which curvature differs is indicated by JP,11-95344,A "omnidirection stereo image photography equipment" again (refer to drawing 16 and drawing 17). As this approach is shown in drawing 16 (outline block diagram) and drawing 17 (that vertical cross section) By

arranging two hyperbola mirrors 101 (201) and 102 (202) so that it may be in agreement at Zero O (203) in an outside focus, and arranging a video camera 104 so that a lens core may come to the zero O (203) the photography side 204 -- two stereo pairs of a measure point P (207) -- when 208,209 is photoed by coincidence, the stereo image of a perimeter enclosure is picturized at once. [0006]

[Problem(s) to be Solved by the Invention] Each following trouble is got in the wide range conventional image pick-up equipment explained above. The thing of "the video camera for an image pick-up" shown in drawing 14 is difficult for high-speed migration because of the weight of the video camera itself, and since the installation space of the shape of a dome according to the migration space of a video camera is also needed, improvement in the speed and a miniaturization are difficult for it. Moreover, in order to secure the movable space of the mirror 1311 of the thing in which high-speed migration is possible by lightweight-ization of a mirror 1311, predetermined space is needed, and the thing of "the perimeter panorama image configuration approach and equipment" which are shown in drawing 15 becomes difficult [a miniaturization]. Furthermore, although it is possible for the amount of moving part not to be as for the thing of the "omnidirection stereo image photography equipment" shown in drawing 16 and drawing 17 , and to acquire a wide range image at once In order for the amount of information of an acquisition image to run short in the usual image sensor and to use two special mirrors 101 (201) and 102 (202), a price is high, it is difficult to attain low-pricing, and further, since the installation space of these two special mirrors is also needed, a miniaturization becomes difficult. Then, this invention aims at realizing miniaturization of image pick-up (photography) equipment, low-pricing, and high-speed acquisition-ization of a wide range image in view of the above technical problem.

[0007]

[Means for Solving the Problem] In order to solve the above-mentioned technical problem, invention indicated by claim 1 In the wide range image pick-up approach which picturizes two or more wide range image pick-up fields with the image pick-up equipment of immobilization The disc-like hologram which has whenever [predetermined angle-of-diffraction], or the disc-like hologram which made whenever [angle-of-diffraction / of each hologram of fanning divided into two or more fields] differ mutually, Or the sheet-like hologram which made whenever [angle-of-diffraction / of each hologram of the rectangle mold divided into two or more fields] differ mutually is arranged in the front face of said image pick-up equipment. The hologram of the shape of the discoid or a sheet is moved with a hologram migration means. Invention which offered the wide range image pick-up approach characterized by picturizing said two or more wide range image pick-up fields, and was indicated by claim 2 In the wide range image pick-up approach which picturizes two or more wide range image pick-up fields with the image pick-up equipment of immobilization The disc-like hologram which has whenever [predetermined angle-of-diffraction], or the disc-like hologram which made whenever [angle-of-diffraction / of each hologram of fanning divided into two or more fields] differ mutually, Or the sheet-like hologram which made whenever [angle-of-diffraction / of each hologram of the rectangle mold divided into two or more fields] differ mutually is arranged in the front face of said image pick-up equipment. The hologram of the shape of the discoid or a sheet is moved with a hologram migration means. The wide range image pick-up approach characterized by choosing the video signal which picturized said two or more wide range image pick-up fields, and picturized said two or more image pick-up fields outputted from the image pick-up equipment of said immobilization for every video signal of each image pick-up field corresponding to said two or more image pick-up fields, and outputting as a video signal of another network is offered. In the wide range image pick-up approach that invention indicated by claim 3 picturizes two or more wide range image pick-up fields with the image pick-up equipment of immobilization The disc-like hologram which has whenever [predetermined angle-of-diffraction], or the disc-like hologram which made whenever [angle-of-diffraction / of each hologram of fanning divided into two or more fields] differ mutually, Or the sheet-like hologram which made whenever [angle-of-diffraction / of each

hologram of the rectangle mold divided into two or more fields] differ mutually is arranged in the front face of said image pick-up equipment. The hologram of the shape of the discoid or a sheet is moved with a hologram migration means. The wide range image pick-up approach characterized by outputting the video signal which picturized said two or more wide range image pick-up fields, and picturized two or more image pick-up fields outputted from the image pick-up equipment of said immobilization as a single video signal which can display said two or more image pick-up fields on coincidence with single supervisory equipment is offered. In the wide range image pick-up approach that invention indicated by claim 4 picturizes two or more wide range image pick-up fields with the image pick-up equipment of immobilization. The disc-like hologram which has whenever [predetermined angle-of-diffraction], or the disc-like hologram which made whenever [angle-of-diffraction / of each hologram of fanning divided into two or more fields] differ mutually, Or the sheet-like hologram which made whenever [angle-of-diffraction / of each hologram of the rectangle mold divided into two or more fields] differ mutually is arranged in the front face of said image pick-up equipment. The hologram of the shape of the discoid or a sheet is moved with a hologram migration means, and when it is judged that said hologram has stopped, the wide range image pick-up approach characterized by picturizing the specific image pick-up field of said two or more wide range image pick-up fields is offered.

[0008]

[Embodiment of the Invention] One desirable example explains with drawing below about the gestalt of implementation of the wide range image pick-up approach (equipment) of this invention. The 1st example of the wide range image pick-up approach of this invention is explained with drawing 1 . One example of the wide range image pick-up approach (equipment) of this invention shown in drawing 1 consists of motors 4 made to rotate image pick-up equipment 1, a lens 2, a hologram 3, and a hologram 3.

[0009] To image pick-up equipment 1, the usual video camera etc. is usable. The disc-like hologram 3 is arranged at the image pick-up image incidence side of this image pick-up equipment 1. The holograms 3A, 3B, and 3C of each field which the field was quadrised and was divided, and 3D have whenever [different angle-of-diffraction] to two or more fields, respectively as the hologram 3 is shown in drawing 2 . That is, the hologram 3 is carrying out the disc-like gestalt, it comes to divide a disk into the field of the plurality (in this case, four pieces) of fanning, and the hologram of two or more of these fanning consists of a different angle of diffraction corresponding to two or more image pick-up fields.

[0010] The hologram 3 is divided into two or more fields as shown in drawing 2 , and the hologram of each field consists of holograms which have whenever [different angle-of-diffraction]. In drawing 2 , although divided into four fields, the number of partitions is the number of partitions according to the number of image pick-up fields used as the candidate for an image pick-up, and is manufactured beforehand. Drawing 12 shows typically the image pick-up fields A0, B0, C0, and D0 used as image pick-up equipment X and the candidate for an image pick-up according to two dimensions.

[0011] A0, B0, C0, and D0 show the image pick-up field which serves as X and a candidate for an image pick-up in the image pick-up equipment which has a hologram 3. Z0 shows the image pick-up field at the time of going caudad and installing image pick-up equipment without a hologram 3 in drawing 12 . Usually, if it picturizes without moving image pick-up equipment without a hologram 3, the image pick-up field will be limited only to the image pick-up field shown in Z0, and, naturally it cannot perform performing a wide range image pick-up.

[0012] It doubles with each location of two or more image pick-up fields A0, B0, C0, and D0 which serve as a candidate for an image pick-up in this invention as shown in drawing 13 . By using a hologram which serves as the divided holograms 3A, 3B, and 3C which constitute the hologram 3 shown in drawing 2 and thetaA from which whenever [each angle-of-diffraction / of 3D (drawing 6 6A, 6B, 6C and 6D)] differs mutually, thetaB, thetaC, and thetaD The image pick-up of these wide range image pick-up fields A0, B0, C0, and D0 was realized.

[0013] Moreover, when a hologram simple substance is used like drawing 1 , it is difficult for chromatic aberration to occur and to obtain a good image. Then, the lens 2 arranged in the front face of image pick-up equipment 1 is a chromatic-aberration correcting lens arranged in order to amend the chromatic aberration of a hologram 3, and becomes acquirable [a good image] by this. A motor 4 rotates a hologram 3, and it is used in order to make a migration change of the image pick-up field.

[0014] A hologram 3 rotates by rotation of a motor 4, and drawing 3 and drawing 4 show typically signs that an image pick-up field is changed by the diffraction phenomena of a hologram 3, when the division field where holograms 3 differ has been arranged in the front face of the image pick-up image incidence section of an image sensor. The field 5 surrounded as the continuous line shown in drawing 3 and drawing 4 shows the image pick-up field.

[0015] A wide range image pick-up is possible, without moving the video camera itself, and it is not necessary to secure the space for moving a video camera beforehand with this configuration. Moreover, since it is lightweight, if a hologram plate has slight installation space, high-speed migration is possible [it is thin, and] for it.

[0016] Drawing 5 is drawing having shown the block configuration of the 2nd example of the wide range image pick-up approach (equipment) of this invention. The example shown in drawing 5 is constituted by the image sensor 1, the hologram 3, the delivery roller 6, and the wavelength selection filter 7. The hologram 3 of drawing 5 has the shape of a thin sheet, as shown in drawing 5 and drawing 6 , and it is divided into the fields 6A, 6B, 6C, and 6D of two or more rectangle molds according to the number of image pick-up fields. That is, the hologram 3 is carrying out the sheet-like gestalt, the sheet is divided into two or more fields of a rectangle mold, and the hologram of two or more rectangle molds is a hologram which consists of whenever [corresponding to two or more image pick-up fields / mutually different angle-of-diffraction] (whenever [angle-of-diffraction]).

[0017] As migration of a hologram 3 is performed by the delivery roller 6 and the motor which is not illustrated and it is shown in drawing 5 , it is making it move to a longitudinal direction, and an image pick-up field can be made to change by arranging the field where holograms 3 differ to the image pick-up image plane of incidence of image pick-up equipment 1. Moreover, at drawing 5 , degradation of the image by the chromatic aberration of a hologram 3 is prevented by arranging the wavelength selection filter 7 to image pick-up image plane of incidence.

[0018] Since the light which carries out incidence to image pick-up equipment 1 with the wavelength selection filter 7 turns into the homogeneous light, the image pick-up of a color picture cannot be performed, but when image pick-up equipment equipped with the image sensor of monochrome may be used, it becomes possible to make the price fall. Moreover, since it is possible to optimize to the transmitted wave length of the wavelength selection filter 7, and to design a hologram 3, it is also possible to raise the diffraction efficiency of a hologram 3.

[0019] In the equipment which uses the delivery roller 6 shown in drawing 5 , since the angle of diffraction of the hologram of an image pick-up field corresponding to it does not change as long as the same field of the hologram 3 constituted in the shape of a sheet is picturized, as shown in drawing 6 , even if it picturizes while a hologram 3 moves, screen blurring is not generated in principle.

[0020] Drawing 7 is drawing having shown the block configuration of the 3rd example of the wide range image pick-up approach (equipment) of this invention. The 3rd example shown in drawing 7 consists of a motor 4 made to rotate an image sensor 1, a hologram 3, and a hologram 3 and an infrared emitting diode 8. Although a motor 4 is easy to be the same as that of the example of drawing 1 , the methods of making a hologram 3 drive differ.

[0021] Unlike the example of drawing 1 , the hologram 3 is disc-like like the example of drawing 1 , and every time it is divided into two or more fields, it is not broken, but although it is rotated by the motor 4, as shown in drawing 8 , it consists of single holograms. Moreover, although not illustrated in detail, in order to also use the center section of a hologram for an image pick-up, like drawing 1 , in

the center section, it supports not in the structure which supports a hologram but in the periphery section of a hologram, and the rotation driving force of a motor is also transmitted in the periphery section.

[0022] By rotating a hologram 3 by the motor 4, as shown in drawing 9, although the angle of diffraction of the hologram 3 of a single configuration does not change, it is changing the diffraction direction, and the photography of two or more image pick-up fields d by carrying out modification migration of the unit image pick-up field e one after another of it is attained.

[0023] Therefore, it becomes possible by carrying out a rotation drive by the motor 4, and carrying out one revolution of holograms 3 to scan two or more ring-like image pick-up fields d. The infrared emitting diode 8 shown in drawing 7 is used as illumination light for photography of an image pick-up field.

[0024] This example is an example suitable for the image pick-up in a dark place or the night, and usually uses the infrared light which cannot be felt as illumination light by human being's eyes. Since the light of the wavelength to which the infrared emitting diode 8 was limited is emitted in this example, it is not necessary to take chromatic aberration into consideration in a hologram 3.

[0025] For this reason, it is necessary to use neither a correcting lens nor a wavelength selection filter. Moreover, also about image pick-up equipment 1, since there is infrared sensibility, a thing usual monochrome type can be used. For this reason, the configuration of this example can be constituted from a low price.

[0026] Although the above example showed some examples which combined the configuration of image pick-up equipment 1 and a hologram 3, the aberration correcting lens 2, the wavelength selection filter 7, and the infrared emitting diode 8 grade for illumination light, it cannot be overemphasized that it can be used in various combination according to a use gestalt besides this.

[0027] The block configuration of the 4th example of the wide range image pick-up equipment with which the wide range image pick-up approach of this invention is applied is explained below with drawing. The 4th example shown in drawing 10 is the part of 9 surrounded as the continuous line. The image pick-up equipment 1 which picturizes the image pick-up field 5, a lens 2, a hologram 3, a motor 4, the motor control circuit 10, the hologram location detector 11, sensor 11S, The microcomputer circuit 12, the Y/C separation circuit 13, the synchronizing signal separation circuit 14, a decoder 15, A/D converter 16, the image selection circuitry 17, image memories 18A-18D, It is constituted by the video-signal generation circuits 21A-21D which supply an output signal to D/A converter 19, an encoder 20, Monitors 23A-23D, and VTR24A-24D, and the synchronizing signal generating circuit 22.

[0028] The image acquired with this wide range image pick-up equipment can be observed by two or more supervisory equipment (monitor) 23A-23D and VTR24A-24D. The hologram 3 of the image pick-up equipment 1 which is the thing of a configuration of having 3A shown in drawing 2 thru/or four fields of 3D, and is shown in drawing 10, a hologram 3, and a motor 4 shown in drawing 10 may be the same as that of what was explained by the wide range image pick-up approach, and other configurations explained in the example may be used.

[0029] The wide range image pick-up equipment of this invention is controlled by the microcomputer circuit 12. The motor 4 by which the control signal from this microcomputer circuit 12 was supplied through the motor control circuit 10 rotates, and a hologram 3 rotates.

[0030] Modification of an image pick-up field, i.e., migration of the field of fanning as shown in drawing 2, is detected by sensor 11S and the hologram location detector 11 with rotation of a hologram 3, and the hologram location detector 11 supplies the detected location detecting signal to the microcomputer circuit 12.
 [0031] While the microcomputer circuit 12 detects the completion of migration to the hologram field corresponding to a predetermined image pick-up field by this location detecting signal and stopping rotation of a motor 4 through the motor control circuit 10, it tells that the image pick-up of a predetermined image pick-up field is possible to the image selection circuitry 17.

[0032] The video signal which was picturized by image pick-up equipment 1, and was outputted is supplied to the Y/C separation circuit 13, it separates into a chrominance signal C and a luminance signal Y, a luminance signal Y is supplied, and a synchronizing signal is separated by the synchronizing signal separation circuit 14.

[0033] The synchronizing signal separated by the synchronizing signal separation circuit 14 is told to A/D converter 16 and the image selection circuitry 17, and is used as a timing signal of the incorporation of image pick-up data. Moreover, a chrominance signal C and a luminance signal Y are supplied to a decoder 15, are changed into an RGB code, and are inputted into A/D converter 16.

[0034] In the image selection circuitry 17, an image pick-up image is memorized according to the signal which shows that the image pick-up of the predetermined image pick-up field from the microcomputer circuit 12 is possible they to be [any of the image memories 18A-18D corresponding to an image pick-up field]. Read-out of the image data memorized in these image memories 18A-18D is performed to asynchronous with the incorporation of an image.

[0035] the image data memorized in image memories 18A-18D is read one by one according to the synchronizing signal generated in the synchronizing signal generation circuit 22 -- having -- D/A converters 19A-19D, Encoders 20A-20D, and the video-signal generation circuits 21A-21D -- minding -- a video signal -- it is-izing and outputted.

[0036] The image selection circuitry 17 detects the migration condition of a hologram 3 with the signal from the microcomputer circuit 12, it is these image memories 18A-18D, and incorporation of image data is performed. This is for picturizing and preventing screen blurring generated in an image pick-up image during the halt period of a hologram 3 by the image pick-up under hologram migration.

[0037] Moreover, although the image observed with Monitors 23A-23D or VTRs 24A-24D will turn into a different image for every perpendicular period if it is the usual camera since it is carried out by the incorporation and read-out of image pick-up data being asynchronous as explained With this image pick-up equipment, the image same two or more perpendicular periods will be supervised (observation). Since an image being updated and accelerating the passing speed of a hologram 3 can make the configuration of a hologram 3 lightweight with migration of a hologram 3, it is periodically easy, and it does not become the trouble of the monitor of an image.

[0038] Below, the block configuration of the 5th example of the wide range image pick-up equipment with which the wide range image pick-up approach of this invention is applied is explained with drawing. The 5th example shown in drawing 11 is the part of 9A surrounded as the continuous line. The image pick-up equipment 1 which picturizes the image pick-up field 5, a lens 2, a hologram 3, a motor 4, the motor control circuit 10, the hologram location detector 11, sensor 11S, The microcomputer circuit 12, the Y/C separation circuit 13, the synchronizing signal separation circuit 14, a decoder 15, A/D converter 16, the image selection circuitry 17, image memories 18A-18D, It is constituted by the video-signal generation circuit 21 which outputs an output signal to D/A converter 19, an encoder 20, a monitor 23, and VTR24, the synchronizing signal generating circuit 22, the image composition circuit 25, and the output image memory 26.

[0039] The hologram 3 shown in drawing 11 may be the configuration of having four fields of A shown in drawing 2 thru/or D, and that of the image pick-up equipment 1 shown in drawing 11 R> 1, a hologram 3, and a motor 4 may be the same as that of what was explained by the wide range image pick-up approach, and other configurations explained in the example are sufficient as it.

[0040] About incorporation of an image pick-up image, it is based on the same technique as the example of drawing 10 . In this example, the image data memorized in two or more image memories 18A-18D is compounded to the image data of one sheet by the image composition circuit 25, and it memorizes to the output image memory 26.

[0041] In the image composition circuit 25, the image data from each image memories 18A-18D is written in the output image memory 26 according to the synthetic approach chosen by the microcomputer circuit 12, for example, the synthetic approach of making it into the gestalt which

carried out sequential storing of what thinned out the data for the horizontal of one line of each image memory 18 for the data for the horizontal of one line of the output image memory 26 to one fourth.

[0042] The image data written in the output image memory 26 is outputted as a video signal like the example of drawing 10. In this example, it becomes possible to supervise with supervisory equipment 23 single for compounding the image pick-up data of two or more image pick-up fields, and writing as the image data of one sheet in the image composition circuit 25.

[0043] Moreover, since it is easy for an image to be periodically updated with migration of a hologram, and to accelerate the passing speed of a hologram, although the image of two or more image pick-up fields where the updating period of an image becomes a thing according to migration of a hologram, and this example is also displayed on single supervisory equipment as the 3rd example shown in drawing 7 described is not an image of this time of day strictly, the trouble of an image pick-up (observation) of an image does not become.

[0044] Image blurring of the image pick-up image by migration of a hologram 3 is stated to the last. (1) Among the approaches shown in drawing 1, drawing 5, and drawing 7, in which approach, migration of a hologram does not serve as a failure at the time of an image pick-up, unless it is high-speed migration. As for the image obtained by migration of a hologram 3, what the screen moved one by one on supervisory equipment like the video camera of a general neck swing type can be seen.

[0045] (2) That by which the hologram 3 is divided into two or more fields as shown in drawing 1 or drawing 5 came to have described low-speed migration above (1). However, if the migration period of a hologram is 5 seconds in the image pick-up of much image pick-up points (image pick-up field), it is unobservable every 5 seconds. Moreover, if it is made to move to a high speed, an image pick-up (observation) period will become short so much, but in order that an image may move to a high speed, observation with supervisory equipment becomes difficult. That is, it is better to use the wide range image pick-up equipment shown in drawing 10 or drawing 11 to observe much image pick-up points on a false coincidence target.

[0046]

[Effect of the Invention] In the wide range image pick-up approach which picturizes two or more wide range image pick-up fields with the image pick-up equipment of immobilization according to invention indicated by claim 1 The disc-like hologram which has whenever [predetermined angle-of-diffraction], or the disc-like hologram which made whenever [angle-of-diffraction / of each hologram of fanning divided into two or more fields] differ mutually, Or the sheet-like hologram which made whenever [angle-of-diffraction / of each hologram of the rectangle mold divided into two or more fields] differ mutually is arranged in the front face of said image pick-up equipment. Since the hologram of the shape of the discoid or a sheet is moved with a hologram migration means and it was made to picturize said two or more wide range image pick-up fields Since the wide range image pick-up is possible, compared with that to which image pick-up equipment (video camera) itself is moved, or the thing which moves a mirror (rotation), a location is not taken but only migration of a hologram enables it to miniaturize equipment.

[0047] Moreover, since it is not necessary to use two hyperboloid mirrors from which the drive of a multiple spindle [like] is not needed although the video camera itself is moved, and an expensive special configuration, for example, curvature, differs only by migration of a hologram since the wide range image pick-up is possible according to invention indicated by claim 1, it becomes possible for the price to fall equipment.

[0048] moreover, according to invention indicated by claim 1, only by migration of a hologram, since the wide range image pick-up is possible, although image pick-up equipment itself is moved, unlike the case where a heavy lift [like] is moved, the change of each image pick-up field is possible at a high speed, and the thin hologram of the shape of discoid or a sheet is moved to it -- being sufficient -- since -- it is seldom necessary to also take an installation

[0049] Moreover, according to invention indicated by claim 2, it sets to the wide range image pick-up approach which picturizes two or more wide range image pick-up fields with the image pick-up equipment of immobilization. The disc-like hologram which has whenever [predetermined angle-of-diffraction], or the disc-like hologram which made whenever [angle-of-diffraction / of each hologram of fanning divided into two or more fields] differ mutually, Or the sheet-like hologram which made whenever [angle-of-diffraction / of each hologram of the rectangle mold divided into two or more fields] differ mutually is arranged in the front face of said image pick-up equipment. The hologram of the shape of the discoid or a sheet is moved with a hologram migration means. Since the video signal which picturized said two or more wide range image pick-up fields, and picturized said two or more image pick-up fields outputted from said image pick-up equipment is chosen for every video signal of each image pick-up field corresponding to said two or more image pick-up fields and it was made to output as a video signal of another network Though it is the image pick-up of two or more image pick-up fields, since image pick-up equipment can be managed with one set, its cost top can also be efficient and the price of it can fall.

[0050] Moreover, according to invention indicated by claim 3, it sets to the wide range image pick-up approach which picturizes two or more wide range image pick-up fields with the image pick-up equipment of immobilization. The disc-like hologram which has whenever [predetermined angle-of-diffraction], or the disc-like hologram which made whenever [angle-of-diffraction / of each hologram of fanning divided into two or more fields] differ mutually, Or the sheet-like hologram which made whenever [angle-of-diffraction / of each hologram of the rectangle mold divided into two or more fields] differ mutually is arranged in the front face of said image pick-up equipment. The hologram of the shape of the discoid or a sheet is moved with a hologram migration means. Since it was made to output the video signal which picturized said two or more wide range image pick-up fields, and picturized two or more image pick-up fields outputted from said image pick-up equipment as a single video signal which can display said two or more image pick-up fields on coincidence with single supervisory equipment Since there should just also be a supervisory equipment, it can do a configuration very simply and image pick-up equipment can not only be managed with one set, but can constitute from a low price.

[0051] Moreover, according to invention indicated by claim 4, it sets to the wide range image pick-up approach which picturizes two or more wide range image pick-up fields with the image pick-up equipment of immobilization. The disc-like hologram which has whenever [predetermined angle-of-diffraction], or the disc-like hologram which made whenever [angle-of-diffraction / of each hologram of fanning divided into two or more fields] differ mutually, Or the sheet-like hologram which made whenever [angle-of-diffraction / of each hologram of the rectangle mold divided into two or more fields] differ mutually is arranged in the front face of said image pick-up equipment. The hologram of the shape of the discoid or a sheet is moved with a hologram migration means, and since it was made to picturize the specific field of said two or more wide range image pick-up fields when it was judged that said hologram has stopped, the image pick-up of a good image without screen blurring is attained.

[Translation done.]

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is drawing having shown the block configuration of the 1st example of the wide range image pick-up approach of this invention.

[Drawing 2] It is drawing having shown the configuration of the hologram used in the 1st example of the wide range image pick-up approach of this invention.

[Drawing 3] It is drawing having shown the image pick-up field of the 1st example of the wide range image pick-up approach of this invention.

[Drawing 4] It is drawing having shown the image pick-up field of the 1st example of the wide range image pick-up approach of this invention.

[Drawing 5] It is drawing having shown the block configuration of the 2nd example of the wide range image pick-up approach of this invention.

[Drawing 6] It is drawing having shown the configuration of the hologram used in the 2nd example of the wide range image pick-up approach of this invention.

[Drawing 7] It is drawing having shown the block configuration of the 3rd example of the wide range image pick-up approach of this invention.

[Drawing 8] It is drawing having shown the configuration of the hologram used in the 3rd example of the wide range image pick-up approach of this invention.

[Drawing 9] It is drawing having shown the image pick-up field of the 3rd example of the wide range image pick-up approach of this invention.

[Drawing 10] It is drawing having shown the block configuration of the 4th example of the wide range image pick-up equipment with which the wide range image pick-up approach of this invention is applied.

[Drawing 11] It is drawing having shown the block configuration of the 5th example of the wide range image pick-up equipment with which the wide range image pick-up approach of this invention is applied.

[Drawing 12] It is drawing having shown typically the outline of the image pick-up equipment of the wide range image pick-up approach of this invention, and the relation of an image pick-up field according to two dimensions.

[Drawing 13] It is drawing having shown typically the outline of the relation between the image pick-up equipment by the wide range image pick-up approach of this invention, and its image pick-up field according to two dimensions.

[Drawing 14] It is drawing having shown the block configuration of an example of the wide range image pick-up approach by the conventional camera migration.

[Drawing 15] It is drawing having shown the block configuration of an example of the wide range image pick-up approach according the conventional mirror to rotation.

[Drawing 16] It is drawing having shown the outline configuration of an example of the wide range image pick-up (omnidirection stereo image image pick-up) approach by the conventional curved-surface mirror.

[Drawing 17] It is drawing having shown the vertical cross section of the outline configuration of an example of the wide range image pick-up approach by the mirror of drawing 16 .

[Description of Notations]

- 1 Image Pick-up Equipment (Video Camera)
- 2 Lens (Chromatic-Aberration Correcting Lens)
- 3 Hologram

3A, 3B, 3C, 3D Divided hologram of fanning from which whenever [angle-of-diffraction] differs mutually which constitutes a hologram 3
4 Motor (Hologram Migration Means)
5 Image Pick-up Field
6 Delivery Roller
6A, 6B, 6C, 6D Divided hologram of the rectangle mold with which whenever [angle-of-diffraction] differ mutually which constitutes a hologram 3
7 Wavelength Selection Filter
8 Infrared Emitting Diode
9 9A Wide range image pick-up (image acquisition) equipment
10 Motor Control Circuit
11 Hologram Location Detector
11S Sensor
12 Microcomputer Circuit
13 Y/C Separation Circuit
14 Synchronizing Signal Separation Circuit
15 Decoder
16 A/D Converter
17 Image Selection Circuitry
18A-18D Image memory
19, 19A-19D D/A converter
20, 20A-20D Encoder
21, 21A-21D Video-signal generation circuit
22 Synchronizing Signal Generating Circuit
23, 23A-23D Monitor (observation) equipment, monitor
24, 24A-24D VTR, record regenerative apparatus
25 Image Composition Circuit
26 Output Image Memory
A0, B0, C0, D0, Z0 Image pick-up field
X Image pick-up equipment including a hologram 3
d Two or more image pick-up fields
e Unit image pick-up field
thetaA, thetaB, thetaC, thetaD Whenever [hologram angle-of-diffraction]

[Translation done.]

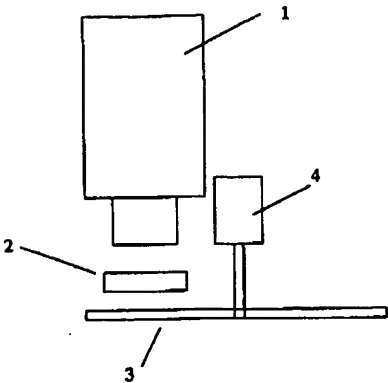
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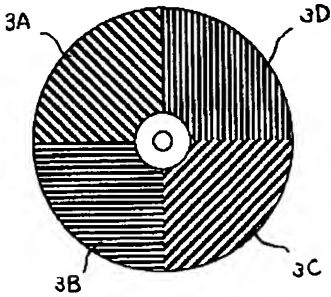
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DRAWINGS

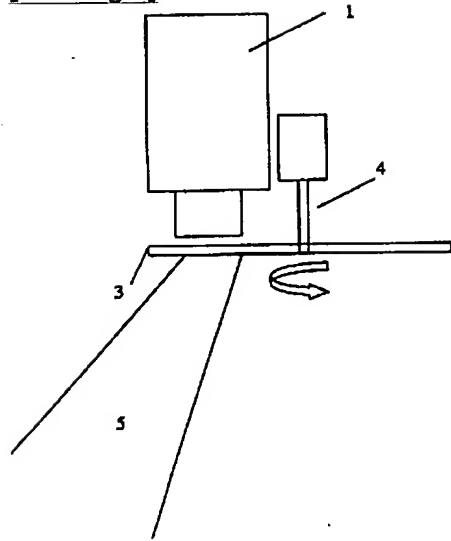
[Drawing 1]



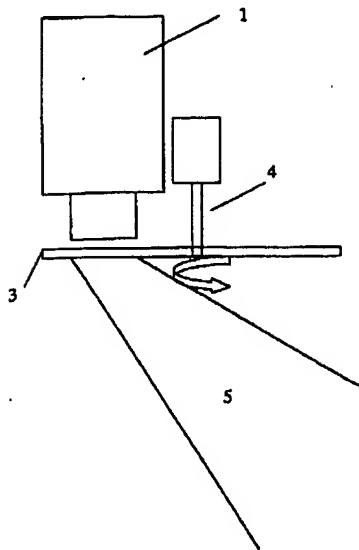
[Drawing 2]



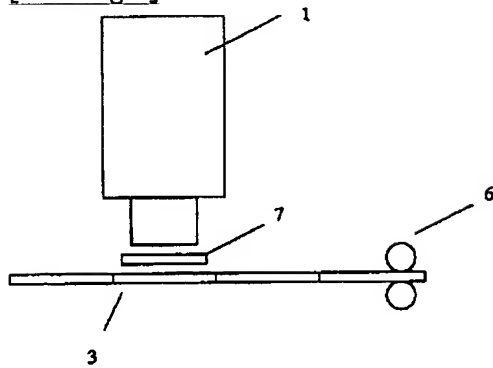
[Drawing 3]



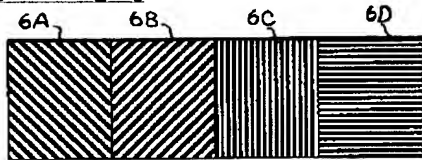
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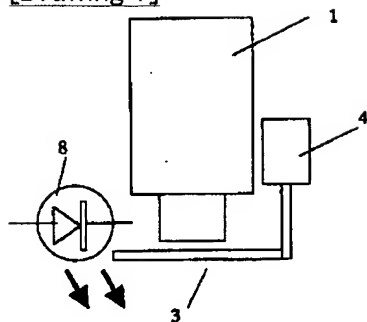
[Drawing 5]



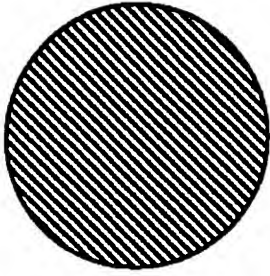
[Drawing 6]



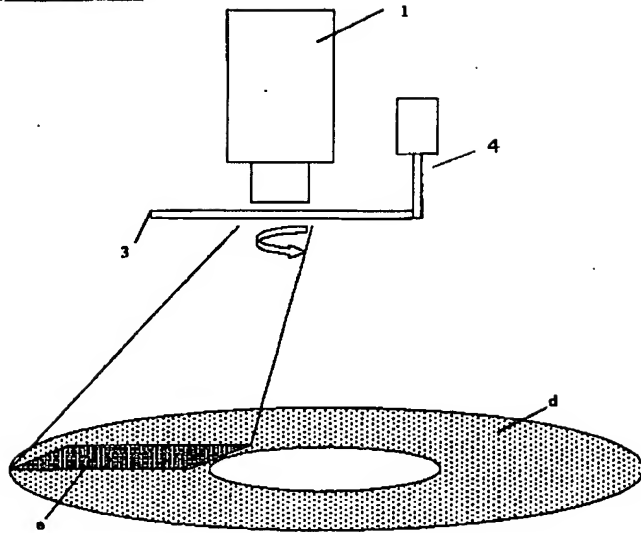
[Drawing 7]



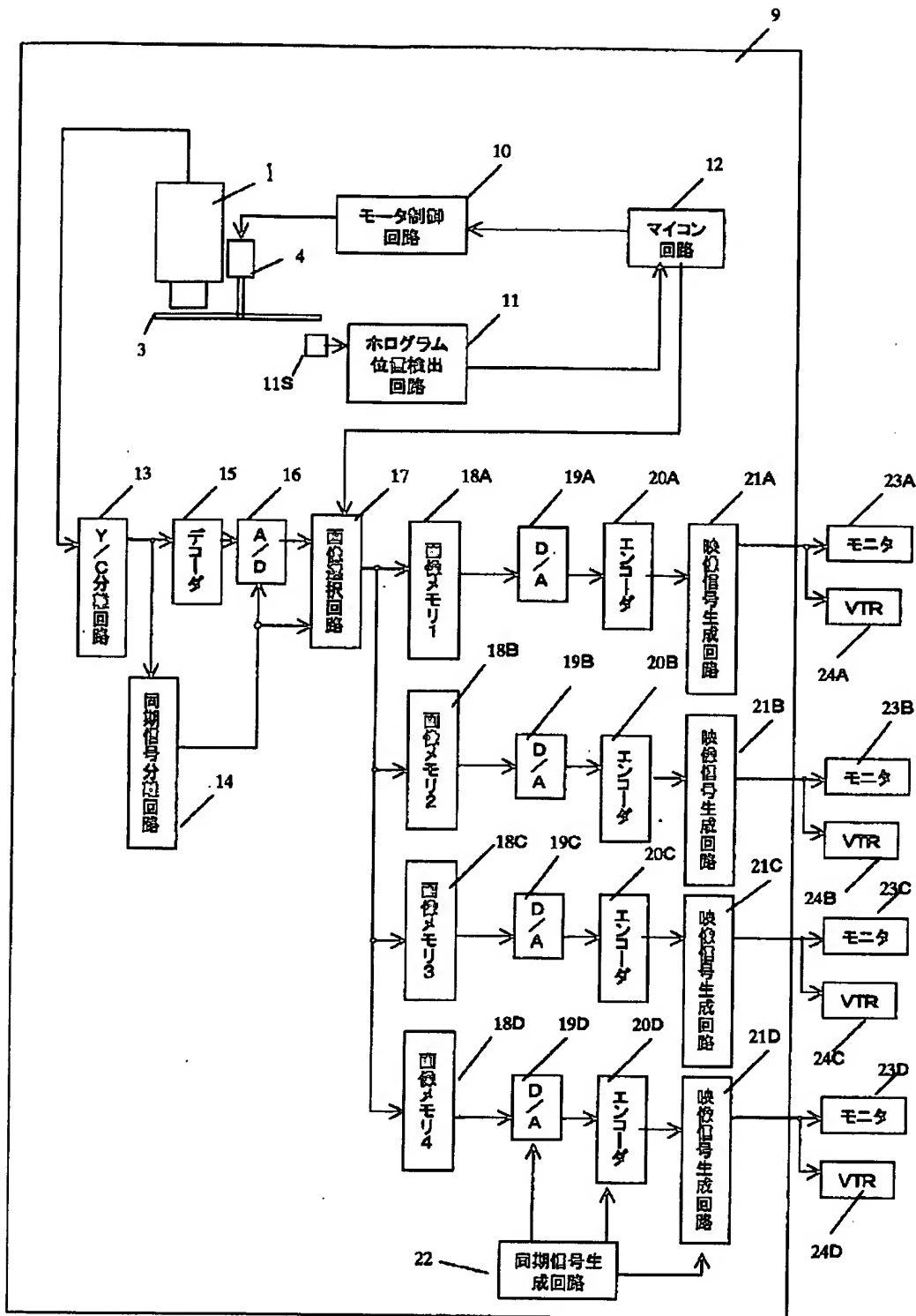
[Drawing 8]



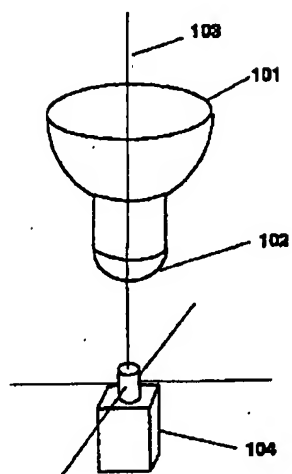
[Drawing 9]



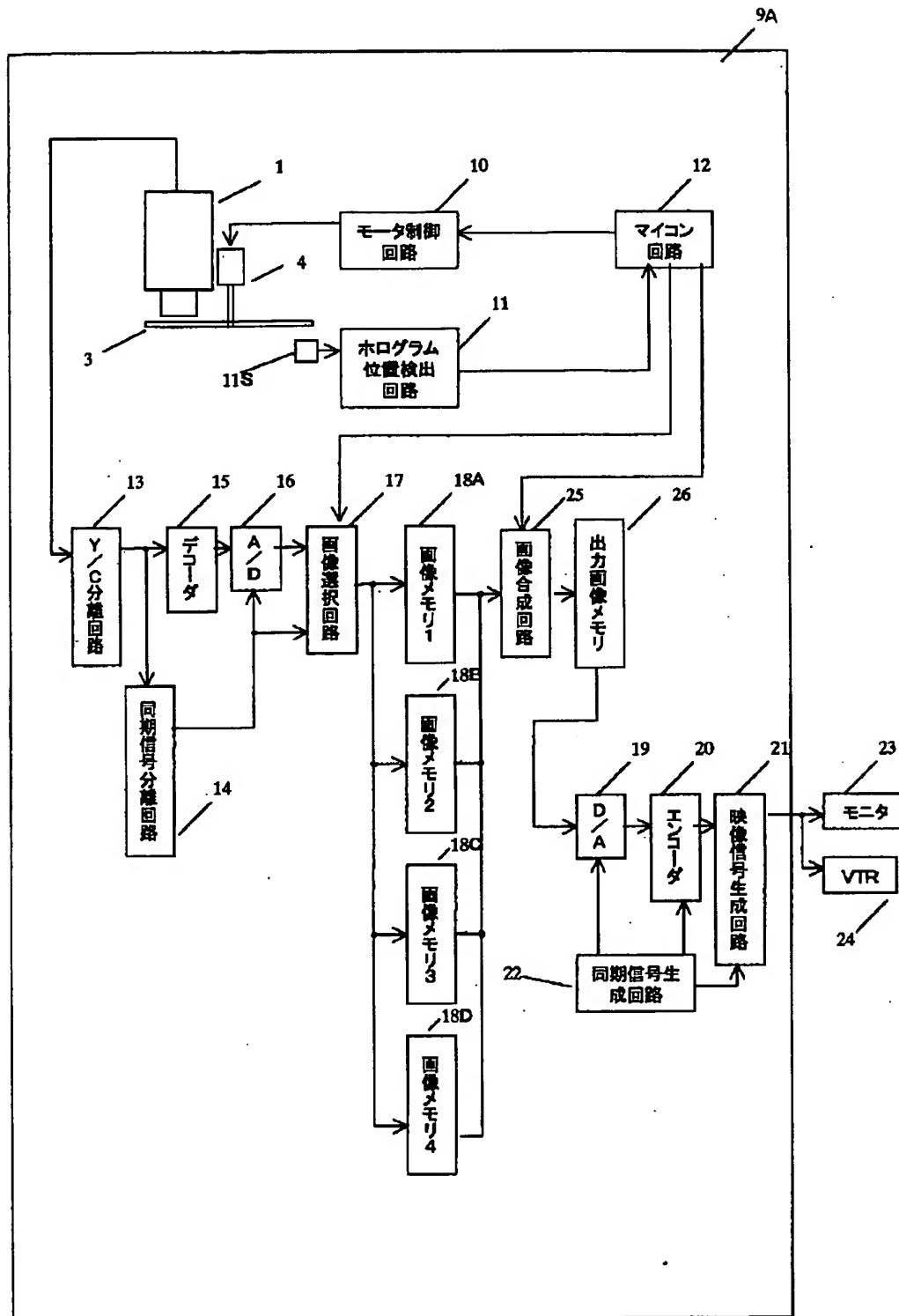
[Drawing 10]



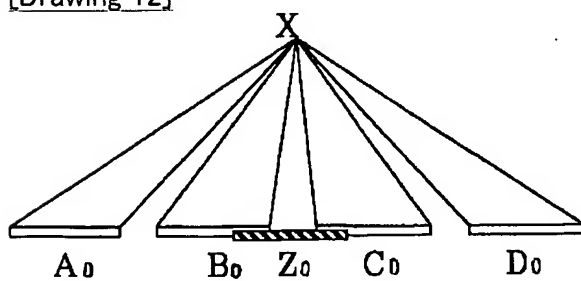
[Drawing 16]



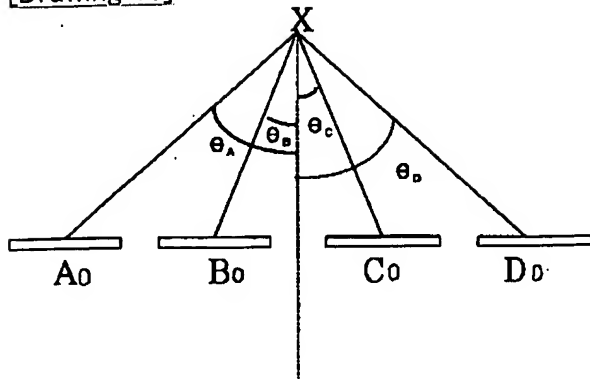
[Drawing 11]



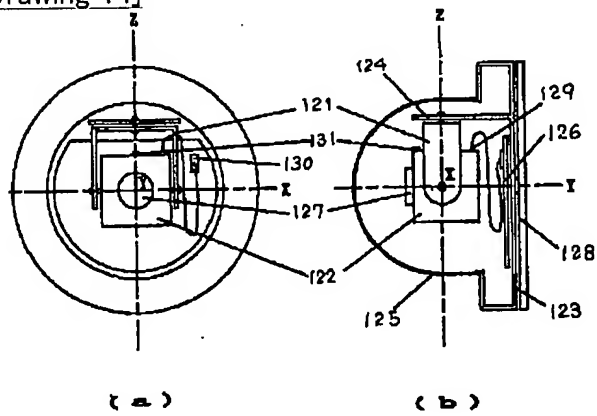
[Drawing 12]



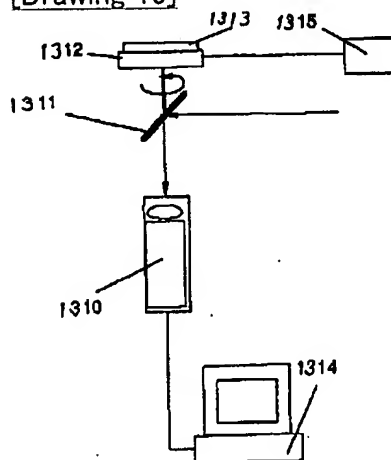
[Drawing 13]



[Drawing 14]



[Drawing 15]



[Drawing 17]

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